DESCRIPTION OF VOLTAGE PHASE SEQUENCE INDICATOR

The Phase Sequence Indicator used by the staff of the Customer Supply & Services Section of the Council is of this form. Designed for 415V operation, it employs two miniature neon tubes, miniature resistors and a small capacitor. All components are moulded in a transparent epoxy resin case which makes the device waterproof and mechanically robust.

The neon tubes are marked "clockwise" and "anticlock" respectively, the glowing tube signifying the appropriate phase sequence, the other tube remains extinguished.

Red, yellow and blue test leads emerge from one end of the case through protective bushes and are fitted with jack plugs having insulated grips.

A tapered prod and an alligator clip are provided for use as required to secure the read lead ("A") to the equipment being tested whilst the yellow and blue leads ("B" & "C") are held as test prods.

The tapered prod is designed to be wedged between the two terminal screw heads and the terminal block on polyphase meters and the alligator clip is for use on service fuses, links and similar equipment.

CHECKING INDICATOR

To ensure the phase sequence indicator is in order and to prevent false indications, the red and blue leads must always be connected first. A change will then take place in the indicator tubes when the yellow lead is connected, proving the indicator correct.

e.g. When the red and blue leads are connected to the left and right hand line terminals respectively of a 3 phase meter, both tubes will glow. When the yellow lead is connected to the middle line terminal, one tube will be extinguished leaving the other tube glowing to denote the phase sequence.

When the red and blue leads are connected to the left hand line terminal and neutral terminal respectively of a 2 phase meter, neither of the tubes will glow. When the yellow lead is connected to the right hand line terminal, either both tubes or one tube only will glow.

USE OF INDICATOR

All polyphase meters are tested and adjusted for an anticlockwise phase sequence and they must be connected accordingly. If connected clockwise the meters will record inaccurately.

The methods to be used in checking the phase sequence of meters are as follows:-

1. Three Phase Direct Connected Meter

The tapered prod shall be fitted to the read lead ("A") and connected to the left hand line terminal. The blue lead ("C") shall be connected to the right hand line terminal and the yellow lead ("B") to the middle line terminal.

If the phase sequence is correct the tube marked "anticlock" will glow. If however the "clockwise" tube glows the sequence is incorrect. The two outer line conductors to the meter shall then be interchanged at the rear of the meter board and a further check made. The position of the indicator leads, red, yellow, blue from left to right must not be changed.

2. Two Phase Direct Connected Meter

The tapered prod shall be fitted to the red lead ("A") and connected to the left hand line terminal. The blue lead ("C") shall be connected to neutral terminal and the yellow lead ("B") to the right hand line terminal.

If the phase sequence is correct the tube marked "clockwise" will glow. If however the "anticlock" tube glows or if both tubes glow, the sequence is incorrect. The two line conductors to the meter shall then be interchanged at the rear of the meter board and a further check made. The position of the indicator leads, red, yellow, blue from left to right must not be changed.

3. C.T. Connected Meters

The method of checking the phase sequence of C.T. connected meters is the same as detailed above for Direct Connected metering except that the indicator prods shall be connected to the potential terminals.

NOTE: For correct anticlockwise phase sequence of the meter with the indicator leads connected red, yellow, blue left to right, the "anticlock" tube will glow on a 3 phase meter and the "clockwise" tube will glow on a 2 phase meter.

CUSTOMERS' INSTALLATIONS

When carrying out metering work, on existing installations, care must be taken so that it is reconnected with the same phase sequence.

Before commencing work, the direction of rotation of a three phase motor shall be observed, the direction being noted by an arrow mark on the pulley or other convenient place. In selecting a motor for this check, care must be exercised to ensure that in the event of the direction being reversed on reconnection, no damage will result. In the case of a belt drive, remove the belt if possible.

When the direction of rotation is incorrect, the phase sequence must of course be reversed and the motor checked again.

If there is no suitable motor for this check, the phase sequence shall be checked by means of the Phase Sequence Indicator at the customer's main switch, links, etc. Care must be taken that the Phase Sequence Indicator is connected in the same manner and to the same terminals before disconnection, make a record whether the "clockwise" or "anticlockwise" tube glows with the leads connected red, yellow, blue from left to right.

PHASE RELATIONSHIP

Customers' installations shall be connected and checked in accordance with Standing Instructions.

Particular care must be taken to ensure that existing installations are reconnected with the same phase relationship. Therefore, before commencing work, checks shall be made that the main switch is connected in the active conductor or conductors, an if incorrect it must be left the same way and the supervisor notified.